Development Tools

TPF Toolkit and Debugger update

Matt Gritter
TPF Toolkit

IBM z/TPF
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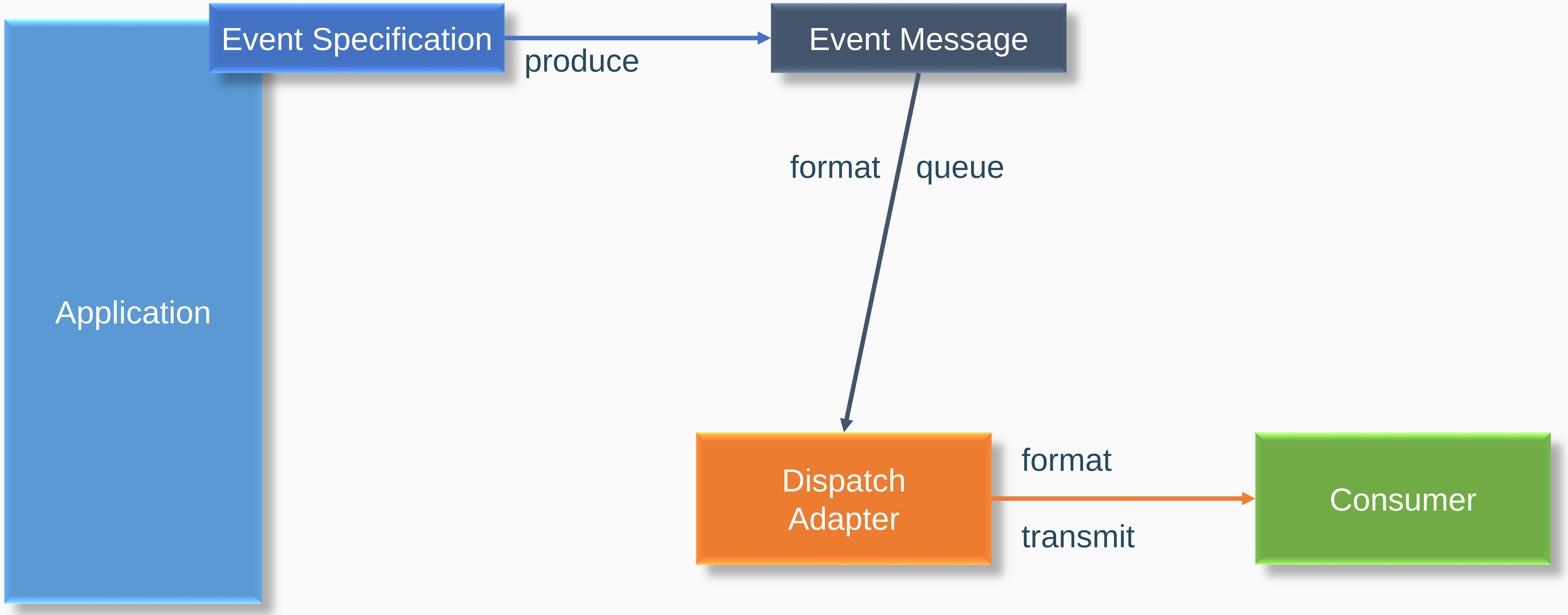
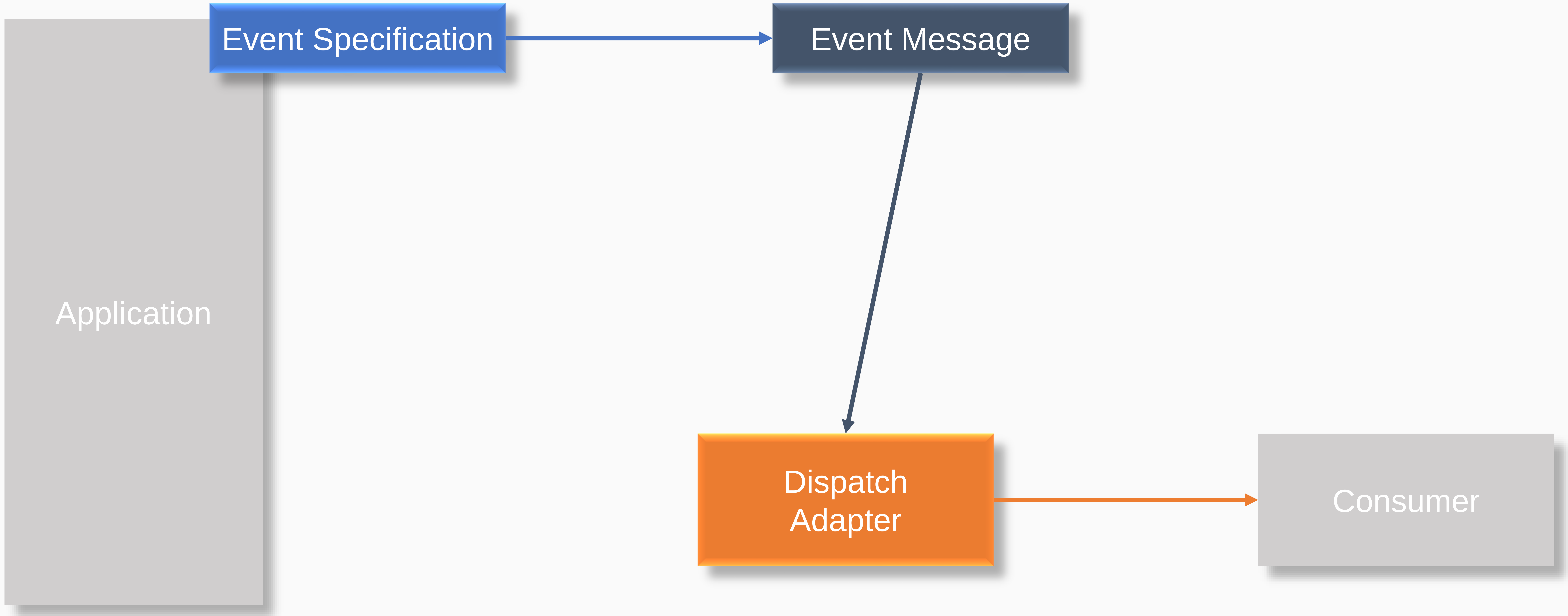
Business Event descriptors overview



Business Event descriptors

Prior to the TPF Toolkit 4.2.7 release, business event deployment descriptors had to be created by hand using template files as reference.

Business Event descriptors



Business Event descriptors

TPF Toolkit 4.2.7 introduced tooling for creating:

- Dispatch Adapters descriptors (XML)
- Data / Signal Event Message descriptors (DFDL)
- Data / Signal Event Specification descriptors (XML)
- z/TPF File Collection descriptors (XML)
- File Event Data descriptors (DFDL)

Business Event descriptors

TPF Toolkit 4.2.7 also included

- DFDL editor
- DFDL parse and serialize testing framework

Business Event descriptors

TPF Toolkit 4.2.9 added

- Validation mechanism to the DFDL editor

REST service descriptors

Tooling for creating:

- Service Definition descriptors
- Service Archive files (z/OS Connect EE API editor support)

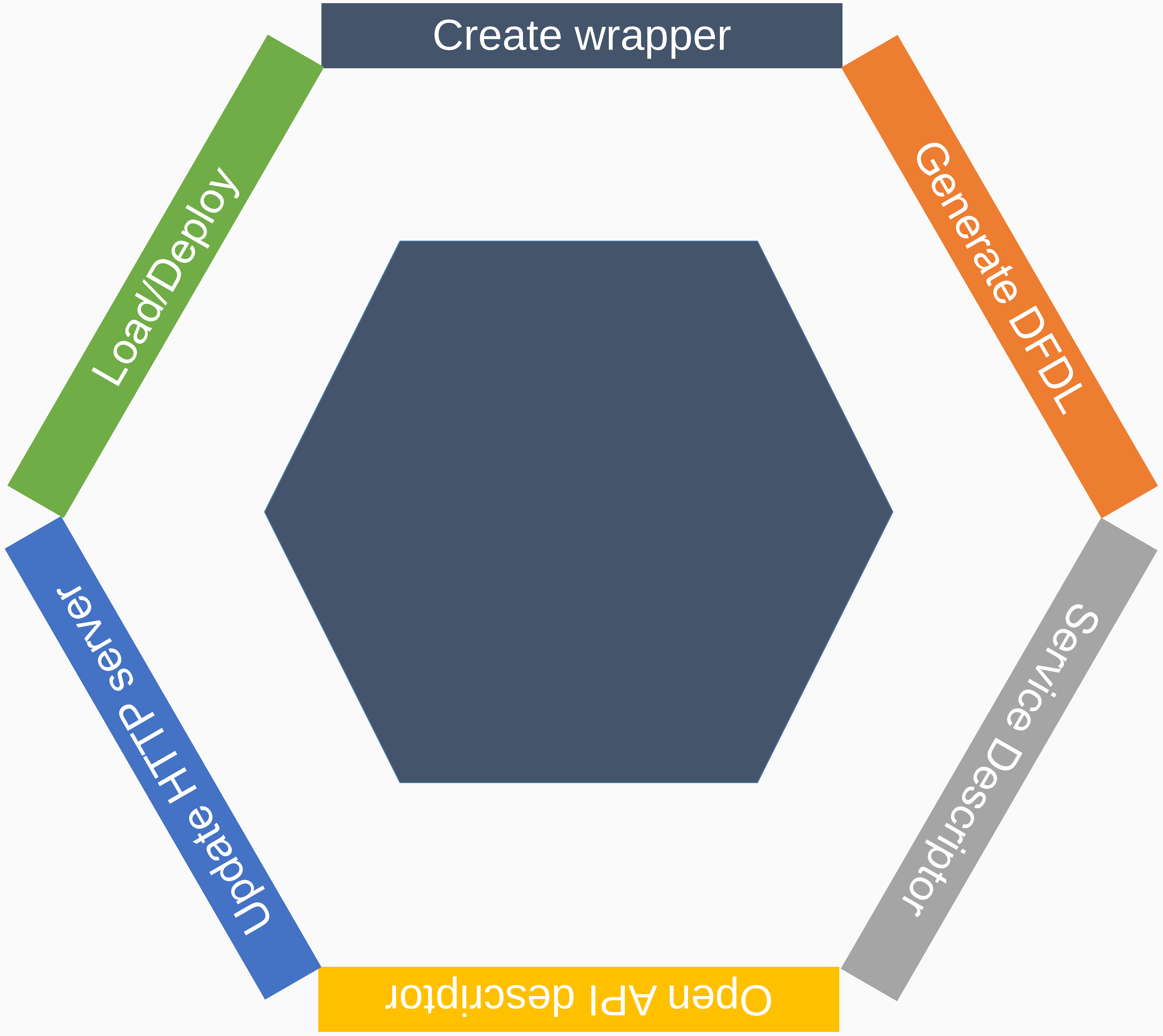
What's new

In TPF Toolkit

- Create a wrapper program to enable calling an existing application using a REST service

- Request structure
- Response structure

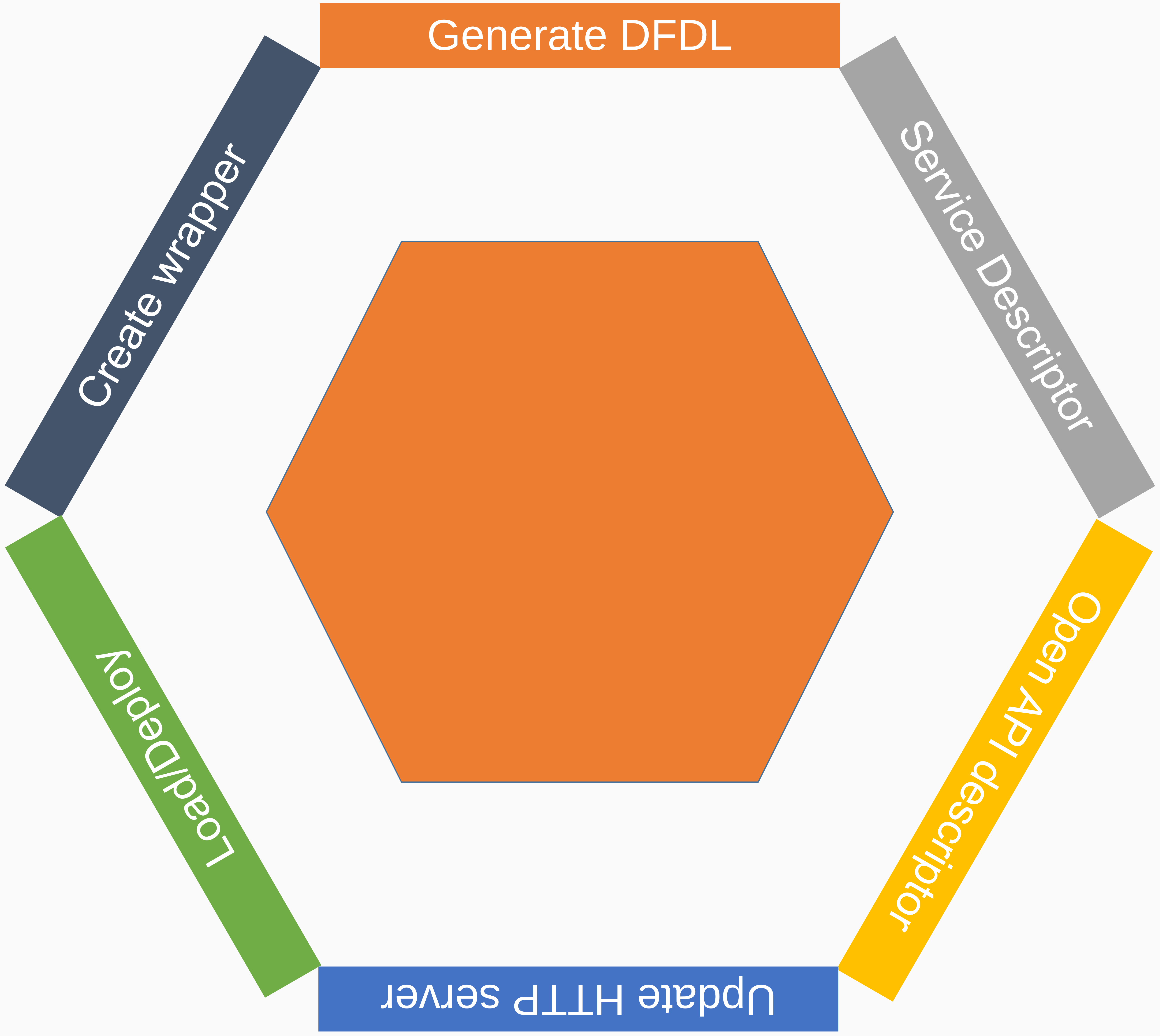
- Handle request
- Produce response



What’s new

In TPF Toolkit

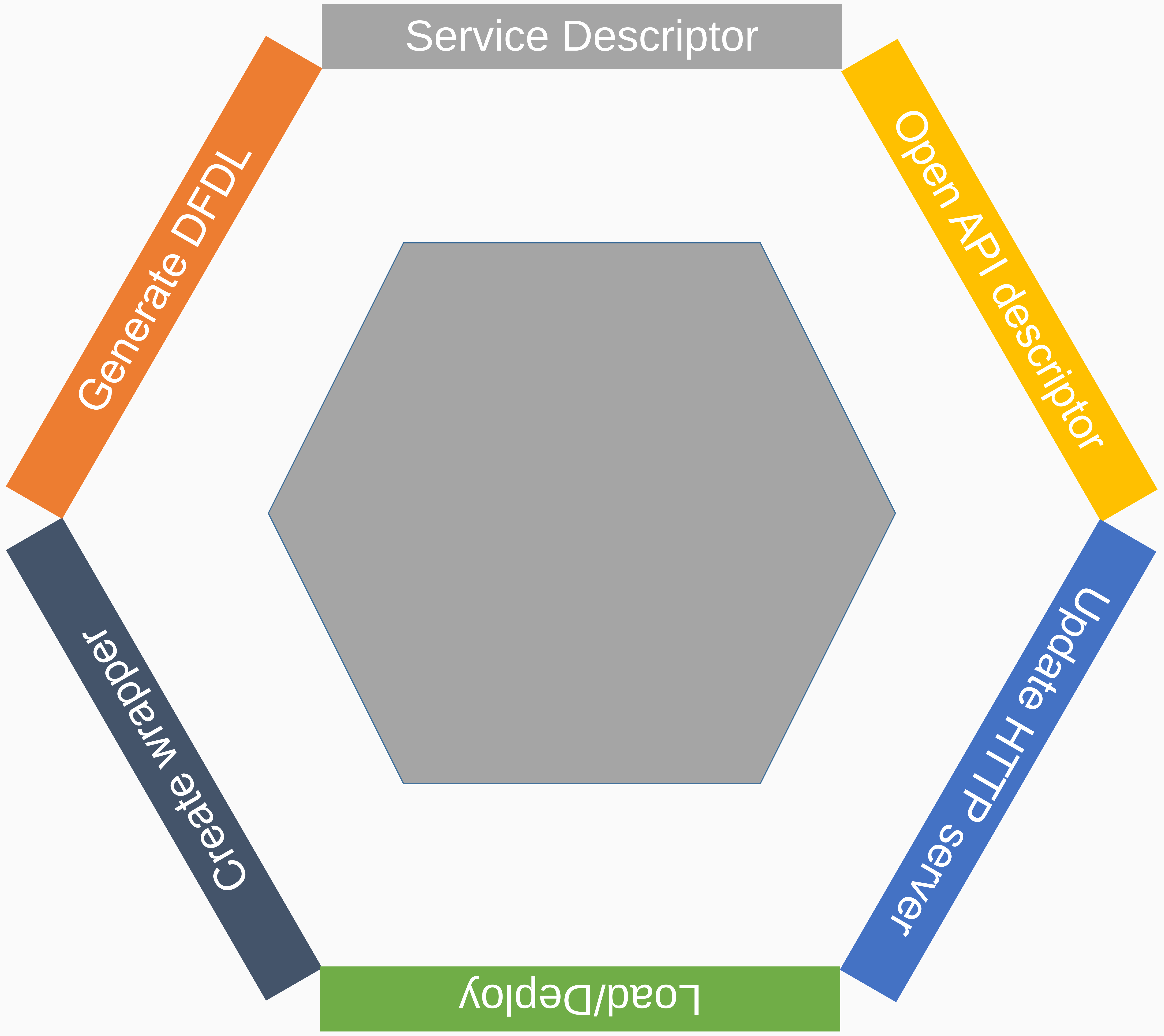
- Build wrapper code via MakeTPF integration with the Generate DFDL Artifacts menu action
- Import request and response DFDL into the descriptor definition project
- Test parse and serialize generated DFDL using the test framework



What's new

In TPF Toolkit

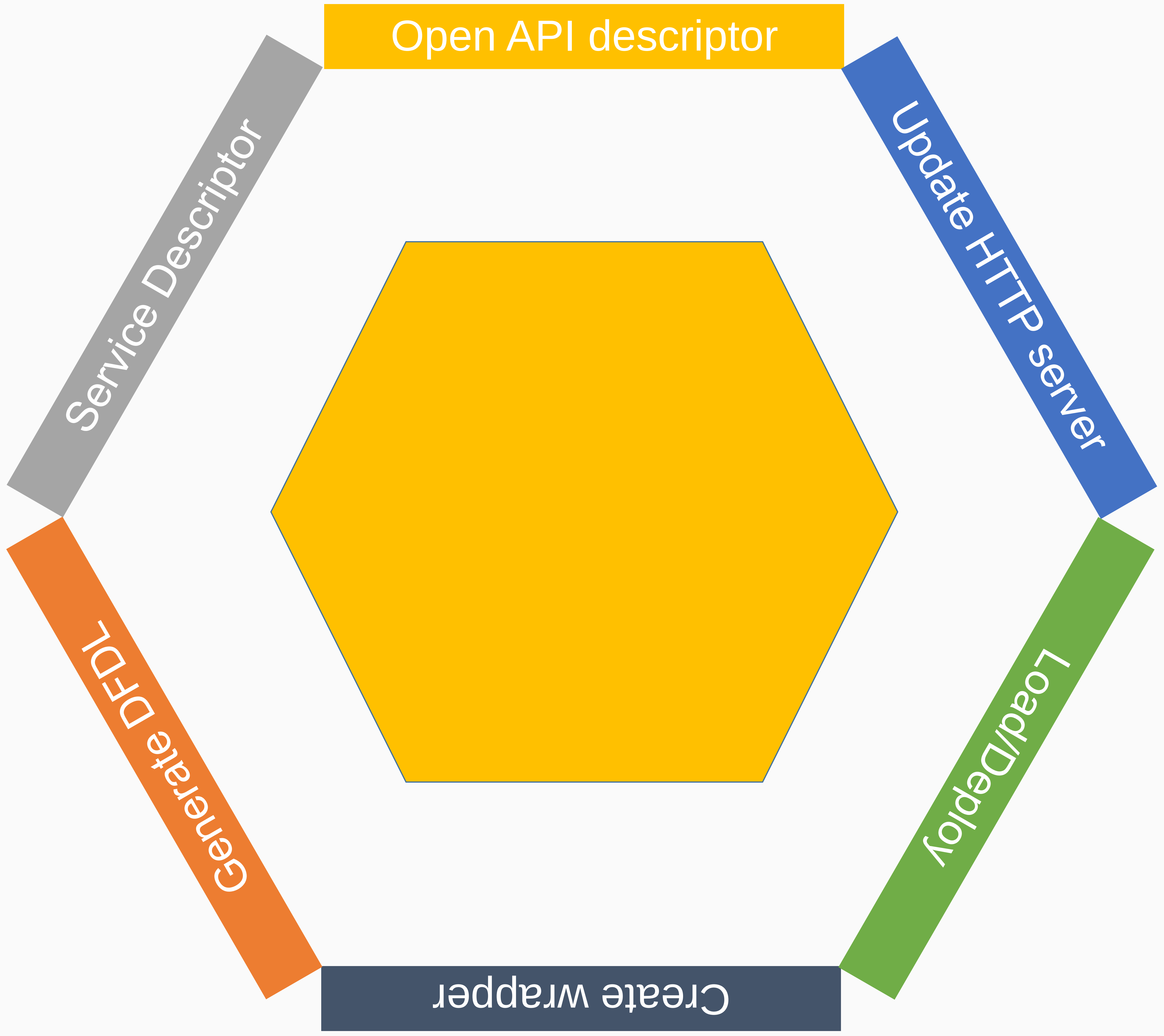
- Run the New Service Artifacts wizard
- Enter service information
- Supply request and response DFDL as inputs
- DFDL request and response are converted to JSON schema and packaged in a Service Archive file for use with the z/OS Connect EE API Editor



What’s new

In IBM Explorer for z/OS

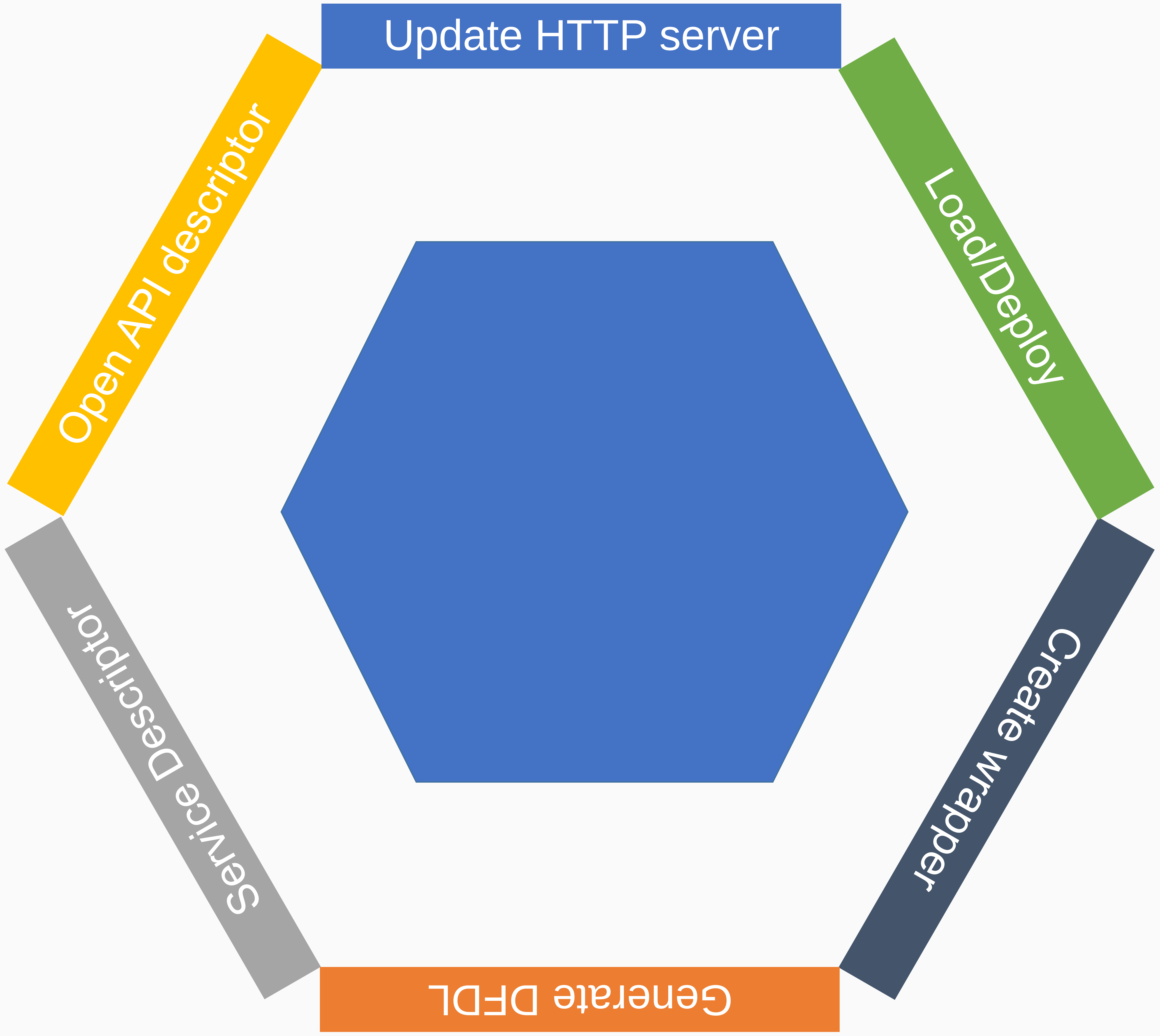
- Import the Service Archive file into the z/OS Connect EE API Editor
- Specify paths and methods
- Map parameters to fields in the request
- Export the generated Open API descriptor and import into a descriptor definition project



What's new

User Action

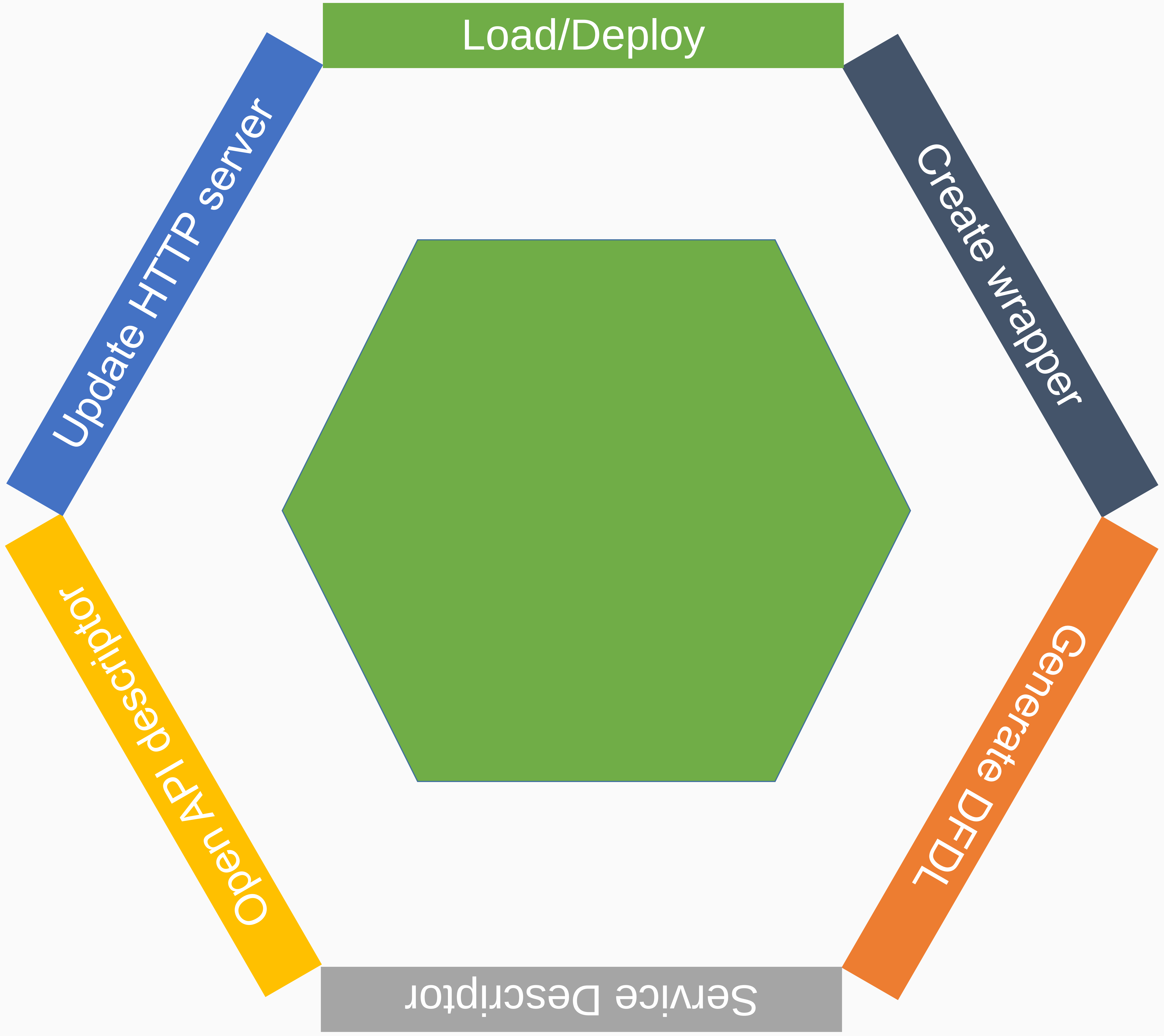
- Update the URL mapping file for the TPF host system



What's new

In TPF Toolkit

- Load wrapper code and service artifacts
- Load using LoadTPF and OLDR actions available from the Descriptor Project Navigator view
- Deploy artifacts as directed in TPF documentation



REST service descriptors

Additional resources

- YouTube: Creating Native REST Artifacts for z/TPF

Java™ service descriptors

Tooling for creating:

- JAM descriptors for Java based services

Java service descriptors

- Similar workflow for REST services with an additional descriptor to associate the service with a JAM runtime

Java service descriptors

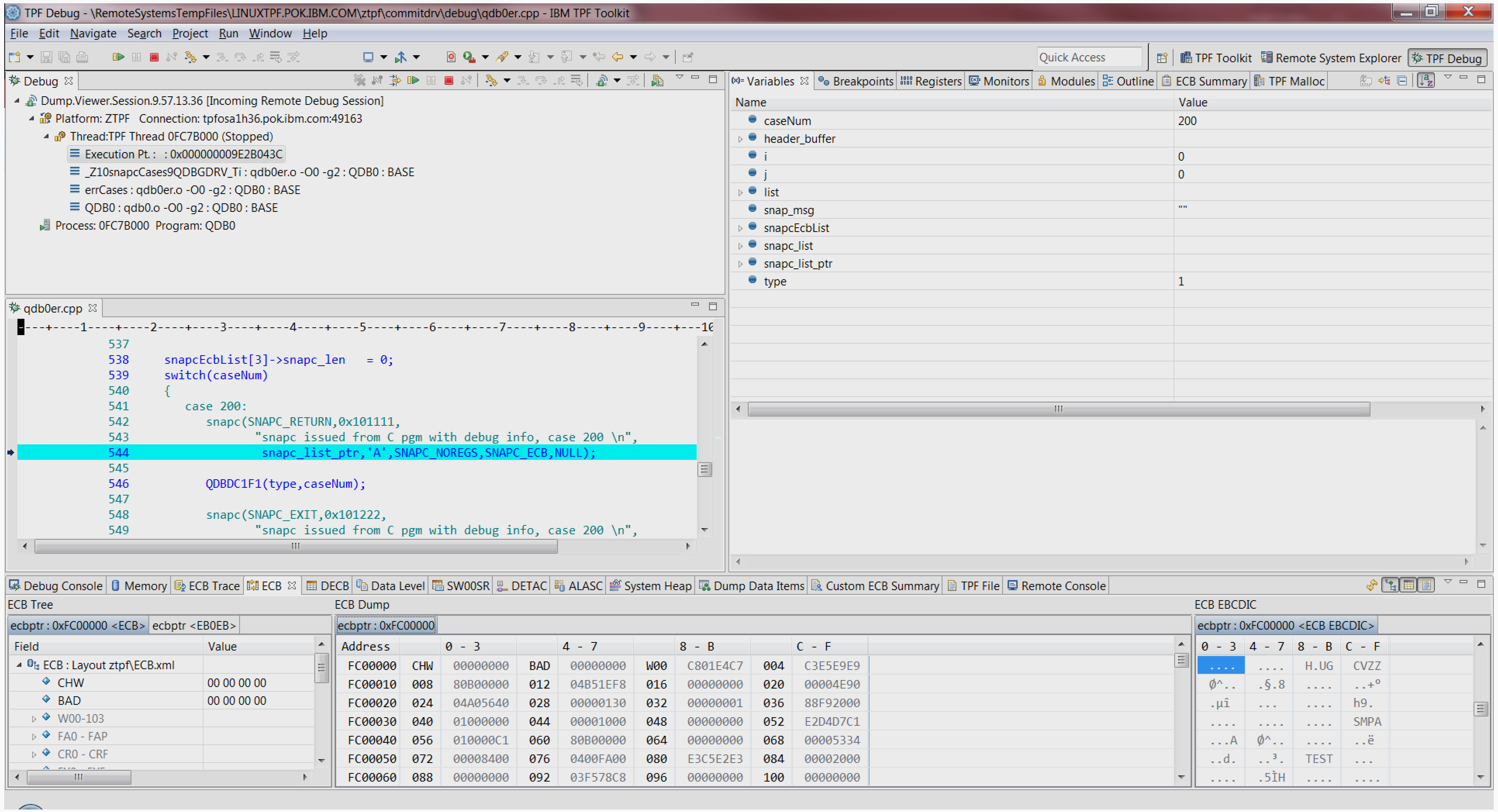
Additional resources

- YouTube: Creating JAM service artifacts for a native TPF application

SNAPC in dump viewer

- ZASER SNAP commands to enable capture of SNAPC
- Found in the Dump Viewer sub-system of TPF connections in the Remote Systems view
- Debug action available from context-menu
- Display captured state of SNAPC

What’s new


TPF Debug - \RemoteSystemsTempFiles\LINUXTPF.POK.IBM.COM\ztpf\commitdrv\debug\qdb0er.cpp - IBM TPF Toolkit

Debug

```
Dump.Viewer.Session.9.57.13.36 [Incoming Remote Debug Session]
  Platform: ZTPF   Connection: tpfosa1h36.pok.ibm.com:49163
    Thread:TPF Thread 0FC7B000 (Stopped)
      Execution Pt. :   : 0x000000009E2B043C
      _Z10snapcCases9QDBGDRV_Ti : qdb0er.o -O0 -g2 : QDB0 : BASE
      errCases : qdb0er.o -O0 -g2 : QDB0 : BASE
      QDB0 : qdb0.o -O0 -g2 : QDB0 : BASE
  Process: 0FC7B000  Program: QDB0
```

Variables

Name	Value
caseNum	200
header_buffer	
i	0
j	0
list	
snap_msg	""
snapcEcbList	
snapc_list	
snapc_list_ptr	
type	1

qdb0er.cpp

```

    snapcEcbList[3]->snapc_len   = 0;
    switch(caseNum)
    {
       case 200:
          snapc(SNAPC_RETURN,0x101111,
                "snapc issued from C pgm with debug info, case 200 \n",
                 snapc_list_ptr,'A',SNAPC_NOREGS,SNAPC_ECB,NULL);

          QDBDC1F1(type,caseNum);

          snapc(SNAPC_EXIT,0x101222,
                "snapc issued from C pgm with debug info, case 200 \n",
```

ECB Tree

ecbptr : 0xFC00000 <ECB> ecbptr <EB0EB>

Field	Value
ECB : Layout ztpf\ECB.xml	
CHW	00 00 00 00
BAD	00 00 00 00
W00-103	
FA0 - FAP	
CR0 - CRF	

ECB Dump

ecbptr : 0xFC00000

```
Address        0 - 3          4 - 7          8 - B          C - F
FC00000  CHW   00000000  BAD  00000000  W00  C801E4C7  004  C3E5E9E9
FC00010  008   80B00000  012  04B51EF8  016  00000000  020  00004E90
FC00020  024   04A05640  028  00000130  032  00000001  036  88F92000
FC00030  040   01000000  044  00001000  048  00000000  052  E2D4D7C1
FC00040  056   010000C1  060  80B00000  064  00000000  068  00005334
FC00050  072   00008400  076  0400FA00  080  E3C5E2E3  084  00002000
FC00060  088   00000000  092  03F578C8  096  00000000  100  00000000
```

ECB EBCDIC

ecbptr : 0xFC00000 <ECB EBCDIC>

```
0 - 3  4 - 7  8 - B  C - F
....   ....   H.UG   CVZZ
Ø^..   .§.8   ....   ..+°
.µî    ...    ....   h9.
....   ....   ....   SMPA
...A   Ø^..   ....   ..ë
..d.   ..³.   TEST   ...
....   .5ÌH   ....   ....
```

What's new

Description	z/TPF APAR	TPF Toolkit version	Requirement
Dump viewer for SNAPC	PJ43583	4.2.7	RFE 64974
Data Event descriptor projects	PJ44028	4.2.7	Customer Request
REST descriptor projects	PJ44281	4.2.9	Customer Request

YouTube channel

How to find it:

- Link in this presentation
- Search for IBM TPF Toolkit on YouTube
- TPF Toolkit documentation
- TPF Blog posts

Disclaimer

Any reference to future plans are for planning purposes only.

IBM reserves the right to change those plans at its discretion.

Any reliance on such a disclosure is solely at your own risk.

IBM makes no commitment to provide additional information in the future.

Scriptable Code Coverage

Goal:

- allow autonomous collection of code coverage for TPF applications

Value:

- Integration point for automated testing
- Integration point with Application Delivery Intelligence for trend analysis

- See TPF Toolkit task force presentation for full details

Next Major Release of TPF Toolkit

- Eclipse 4.6 (Neon)
- Java 8
- Simplified installation mechanism
- Synchronized projects replacing RSE DataStore server
- Improved Eclipse C/C++ Development Tools support
- Focus on usability

Simplified installation mechanism

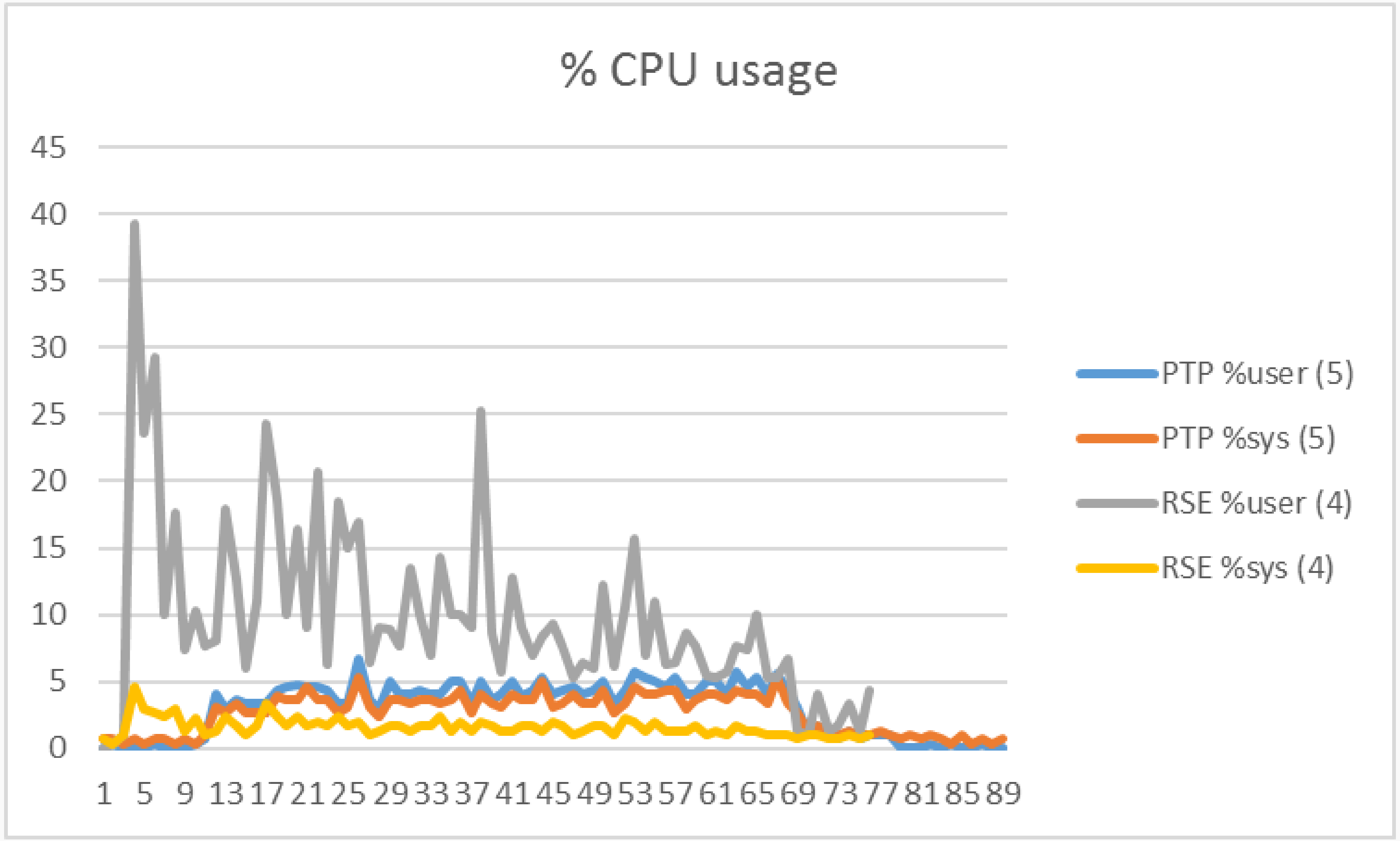
- Unzip and go
- Eclipse P2 update mechanism
- Simpler third party Eclipse tools integration

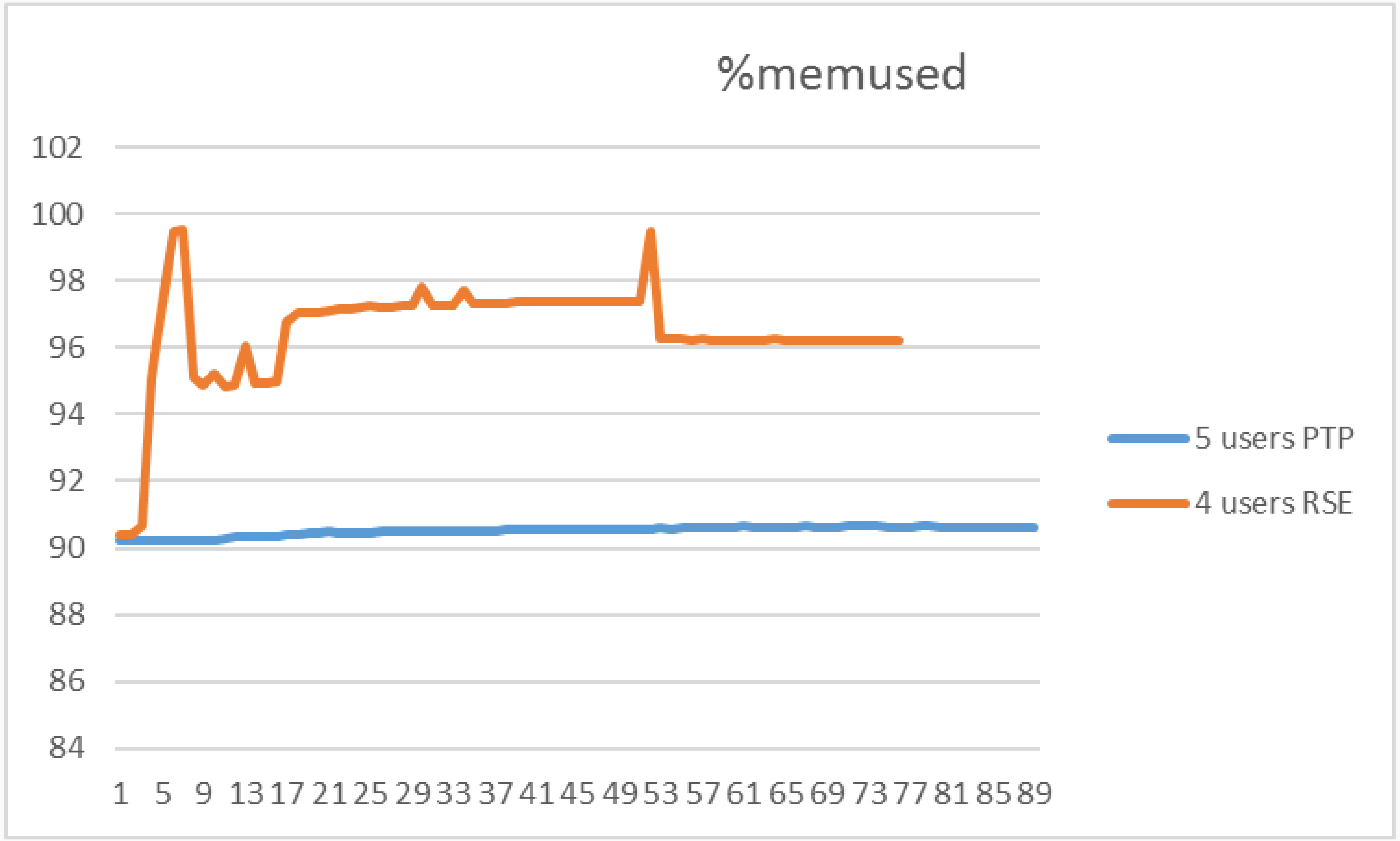
Synchronized projects

- Project code is kept locally and synchronized automatically or on demand to the remote system.
- Custom filtering when synchronizing to ignore any unwanted files
- Possible to setup synchronization points to multiple systems
- Changes from remote system synchronized
- Improved conflict resolution if local and remote both have changes

Synchronized projects – performance test

Small test system with 4 to 5 concurrent users
- running the same automated scenario
- updating and saving the same file every 5 to 10 seconds





Improved Eclipse C/C++ Development Tools support

- Remote C/C++ indexer enables accessing remote header files that are not contained within the project space
- Jump to remote headers from project source
- Auto-completion support based on the remote index content
- Improved Outline view experience
- And more…

Focus on usability

You have the opportunity to participate in the development of the next major version of TPF Toolkit!

If you are interested participating in design thinking sessions with the TPF Toolkit team or receiving beta releases, let us know!

THANK YOU

Questions or comments?

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Trademarks

Notes